

Health and Access to Care in the Lesbian, Gay and Bisexual Population:

Results from a National Study

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ABSTRACT

Public health research on lesbian, gay and bisexual (LGB) adults has been limited in size and scope. Ongoing discourse surrounding same-sex marriage also requires a closer examination on how marriage influences health in LGB populations. Data from the 2013 National Health Interview Survey were used to compare health outcomes, health behaviors and access to health care among a nationally representative sample of LGB adults (n=775) and their heterosexual peers (n=32,529). Gay men were more likely to report heart disease, cigarette smoking and unmet dental care compared to heterosexual men. Bisexual men exhibited greater odds of psychological distress and fair/poor health. Lesbian and bisexual women were more likely to report obesity and unmet mental health care. Differences in health and access to care diminished when stratifying adults to those who were married. This study confirms substantial disparities in LGB health and provides early evidence on the benefits to same-sex marriage.

Health and Access to Care in the Lesbian, Gay and Bisexual Population: Results from a National Study

There are more than 8 million adults in the United States who are lesbian, gay, or bisexual (LGB),¹ but only recently have health care providers and public health researchers become aware of the special health care needs of LGB populations.²⁻⁵ In 2011, the Institute of Medicine identified, and targeted for elimination, disparities in health status and access to medical care for sexual minority individuals.⁶ Many LGB people report worse physical and mental health outcomes than their heterosexual peers as a result of “minority stress”, or the chronic stress associated with being a member of a marginalized minority group.⁷⁻¹⁰ Discriminatory environments and public policies stigmatize LGB people and engender feelings of rejection, shame, and low self-esteem, which can negatively shape their health-related behaviors and mental health.¹¹⁻¹²

Most states deny LGB populations access to legal marriage. Despite the strong evidence finding health benefits to marriage,¹³⁻¹⁵ only 19 states and the District of Columbia allow same-sex couples to legally wed.¹⁶ Marriage can potentially confer health benefits currently enjoyed by heterosexual populations to LGB adults, including improved health habits and better physical and mental health outcomes.¹³⁻¹⁴ Marriage may also improve access to health care because most married workers can add a spouse to their employer-sponsored health plan.¹⁷ After recognizing LGB health disparities and advocating for the inclusion of sexual orientation in national health surveys,^{3,18-19} the American Medical Association (AMA) adopted a policy statement endorsing same-sex marriage in 2009.²⁰

To date, much of the research supporting the AMA policy statements derive from small²¹⁻²³ and non-representative samples^{3,24-26} or from health surveys confined to individual states.²⁷⁻³³

This study provides one of the largest nationwide studies on health and access to health care for LGB individuals. The objectives of our study were to establish baseline estimates for monitoring progress towards eliminating disparities among LGB adults and to examine the empirical support for recent policy statements by the AMA endorsing same-sex marriage.

METHODS

Data Source

The National Health Interview Survey (NHIS) is a nationally representative health survey of the civilian, non-institutionalized population and serves as one of the most comprehensive resources on the nation's health.³⁴ The family core questionnaire records basic health and disability information for each household member while a single random adult in each household is selected for a detailed interview on imperative health information that includes health conditions, health behaviors and access to health care. Our study sample was drawn from the sample adult component in 2013 (n=34,557). Over 75% of the selected households completed the survey, and 81% of selected adults completed the sample adult component.³⁵

Study Sample

Beginning in 2013, a question regarding sexual orientation was added to the sample adult component of the NHIS.³⁶ Respondents aged 18 years and older were asked which of the following categories best represents how they thought of themselves: lesbian or gay; straight, that is, not gay; bisexual; something else; I don't know the answer; or refuse. We classified respondents as lesbian or gay (n=542), bisexual (n=233) and heterosexual (n=32,529). We excluded respondents that indicated their sexual orientation as something else (n=56), did not know the answer (n=155), refused to answer (n=233), or whose sexual orientation did not

correspond to the sex of their spouse or partner (n=46). Transgender identity was not assessed in the NHIS.

Health Measures

We examined differences in several physical and mental health outcomes, health behaviors and measures of access to health care. To measure general health status, we constructed a dichotomous variable for fair or poor health versus excellent, very good, or good health.³⁷ To assess physical health, respondents indicated whether a health care professional has ever told them that they had a specific chronic health condition, including heart disease (coronary heart disease, angina pectoris, myocardial infarctions, and other heart conditions), cerebrovascular disease (stroke), diabetes mellitus, chronic obstructive pulmonary disease (chronic bronchitis and emphysema), asthma and hypertension. Respondents with a functional limitation reported difficulty in at least one of the following: stooping, bending, or kneeling; standing for two hours; pushing or pulling a large object; walking a quarter-mile; climbing ten steps; sitting for two hours; lifting and carrying ten pounds; reaching over head; and grasping small objects.³⁸ Body weight, as measured by body mass index (BMI), was classified as normal or underweight (BMI<25), overweight (25≤BMI<30) and obese (BMI>30). Very few LGB respondents were underweight (n=16), so we combined normal and underweight categories.

We relied on Kessler's instrument (K6) for an indicator of non-specific psychological distress, which asked how often, during the previous 30 days, the respondent felt nervous, hopeless, worthless, so sad that nothing could cheer him/her up, restless or fidgety, and that everything was an effort.³⁹ Based on a 24-point scale, we identified adults between the 7 and 12-point threshold as symptomatic of moderate psychological distress and above the 13-point threshold as symptomatic of severe psychological distress.^{31,40}

Respondents were classified as having been lifetime abstainers from alcohol drinking, former alcohol drinkers and current drinkers. Infrequent, light and moderate current drinkers were distinguished from heavy drinkers (>14 drinks per week for men; >7 drinks per week for women). Cigarette use was classified as non-smokers, former smokers and current smokers. Finally, we included five indicators of barriers to health care: no health insurance; no usual source of health care such as a clinic or doctor's office; unmet medical care due to cost; unmet dental care due to cost; and unmet mental health care due to cost.

Statistical Analysis

We used descriptive statistics to characterize the study sample and to estimate the prevalence of impaired health, health behaviors and access to care. Pearson chi-square tests were used to compare the characteristics across sexual orientation categories. We then estimated binary or multinomial logistic regression models for each outcome; multinomial logistic regression models were used on outcomes with three or more responses (i.e. body weight, alcohol and cigarette use, and mental health). All models were adjusted for age, race and ethnicity, marital status, education, family income, and insurance status. Results are presented as odds ratios (ORs) with 95% confidence intervals (CIs). Finally, we stratified the sample based on marital status and calculated predicted probabilities of health behaviors, mental health status and barriers to health care from logistic regression models. This method allowed us to make direct comparisons between married and unmarried adults by sexual orientation while adjusting for demographic and socioeconomic differences.⁴¹⁻⁴² Two-tailed p-values less than 0.05 were considered statistically significant. We conducted all analyses in Stata using survey weights and the *svy* command to adjust standard errors for the complex survey design of the NHIS.⁴³ This

study was exempted by the institutional review board since it relied on publicly available, de-identified data.

RESULTS

Demographics and Clinical Characteristics by Sexual Orientation

Among all adults 18 years and older, approximately 2% of the non-institutionalized, civilian population identified as lesbian (n=235), gay (n=307) or bisexual (n=78 men; n=155 women) [Table1]. Lesbian and gay adults tended to be younger, white and more likely to have college degrees compared to their heterosexual counterparts. Bisexual adults, while also younger, tended to be more racially and ethnically diverse and from low-income families. Only 6.9% of gay men, 12.2% of lesbian women, and fewer than 30% of bisexual adults were married (most bisexuals were married to opposite-sex spouses), while more than half of heterosexual adults were married.

Table 2 compares clinical characteristics by sexual orientation separately for men and women. Although heterosexual and LGB adults shared similar health profiles as measured by general health status, functional limitation and the prevalence of chronic health conditions, LGB adults were more likely to experience moderate to severe psychological distress and engage in health behaviors that increase their risk of chronic disease, including heavy alcohol consumption and cigarette smoking. While gay and bisexual men were more likely to exhibit normal body weight, lesbian and bisexual women were more likely to be obese. Finally, compared to the heterosexual population, bisexual men and women were most likely to lack health insurance, and all LGB adults were more likely to forgo medical care, dental care and mental health care due to cost.

Gay and Bisexual Men vs Heterosexual Men

Table 3 compares health and access to care between LGB adults and their heterosexual peers while adjusting for demographic and socioeconomic characteristics. Gay men reported similar health profiles as heterosexual men when analyzed by general health status and functional limitation, but gay men were significantly more likely to have heart disease (odds ratio [OR] 1.64; 95% confidence interval [CI], 1.02-2.64). Gay men were also less likely to be overweight (OR, 0.66; 95% CI, 0.45-0.96), but more likely to be moderate alcohol drinkers (OR, 2.64; 95% CI, 1.51-4.61) and former (OR, 1.59; 95% CI, 1.06-2.38) or current (OR, 1.70; 95% CI, 1.02-2.81) cigarette smokers. Although gay men were less likely to lack health insurance (OR, 0.61; 95% CI, 0.39-0.94), they were more likely than heterosexual men to forgo dental care due to cost (OR, 1.59; 95% CI, 1.05-2.42).

When compared to heterosexual men, bisexual men experienced worse physical and mental health, including greater odds of fair/poor health (OR, 2.41; 95% CI, 1.07-5.45), chronic obstructive pulmonary disease (OR, 2.97; 95% CI, 1.11-7.95) and moderate (OR, 4.13; 95% CI, 1.99-8.55) or severe (OR, 5.36; 95% CI, 1.33-21.53) psychological distress. We found that bisexual men did not differ significantly from heterosexual men in terms of health care access.

Lesbian and Bisexual Women vs Heterosexual Women

Table 3 also includes our results from regression analyses comparing lesbian and bisexual women to heterosexual women. After adjusting for demographic and socioeconomic factors, lesbian women reported greater odds of fair/poor health (OR, 1.82; 95% CI, 1.07-3.10), functional limitation (OR, 1.73, 95% CI, 1.16-2.58), obesity (OR, 1.83; 95% CI, 1.21-2.76) and moderate psychological distress (OR, 1.60; 95% CI, 1.01-2.55) compared to heterosexual women. Lesbian women were also more likely to be former (OR, 2.72; 95% CI, 1.29-5.74) and

heavy (OR, 3.29; 95% CI, 1.48-7.34) alcohol drinkers as well as former (OR, 2.89; 95% CI, 1.82-4.59) and current (OR, 2.84; 95% CI, 1.86-4.34) cigarette smokers. Although lesbian women reported similar odds of insurance coverage (OR, 1.27; 95% CI, 0.78-2.05) as their heterosexual counterparts, they were more likely to lack a usual source of care (OR, 1.81; 95% CI, 1.13-2.87) and forgo medical care (OR=2.08; 95% CI=1.29-3.33) and mental health care (OR, 2.54; 95% CI, 1.29-5.02) because of cost.

Compared to their heterosexual counterparts, bisexual women exhibited greater odds of having a functional limitation (OR, 3.14; 95% CI, 1.86-5.30), obesity (OR, 1.99; 95% CI, 1.15-3.43), chronic obstructive pulmonary disease (OR, 2.46; 95% CI, 1.29-4.71), and moderate (OR, 2.69; 95% CI, 1.42-5.11) or severe (OR, 2.94; 95% CI, 1.53-5.67) psychological distress. Bisexual women were also more likely to be heavy alcohol drinkers (OR, 3.26; 95% CI, 1.47-7.23). Finally, bisexual women had greater odds of forgoing dental care (OR, 2.09; 95% CI, 1.27-3.45) and mental health care (OR, 2.89; 95% CI, 1.45-5.77) due to cost.

Marriage and LGB Health Disparities

We stratified health behaviors and mental health outcomes by marital status to determine whether marriage moderates health similarly for heterosexual and LGB adults. Figure 1 presents predicted probabilities of cigarette smoking (Panel A), heavy alcohol drinking (Panel B) and any psychological distress (Panel C) for LGB and heterosexual adults. Married LGB adults were much less likely to smoke cigarettes and experience moderate or severe psychological distress compared to unmarried LGB adults, though the adjusted prevalence did not diminish to levels comparable to married heterosexual adults.

Figure 2 presents predicted probabilities of lacking insurance (Panel A), not having a usual source of care (Panel B) and forgoing medical care due to cost (Panel C). After adjusting

for demographic and socioeconomic factors, married LGB adults shared similar access patterns as married heterosexual adults when measured by insurance coverage (Panel A) and having a usual source of care (Panel B). None of our results change after excluding bisexual individuals with opposite-sex partners from the analysis (see eTables 1-2).

DISCUSSION

This study is the first to examine health issues and needs of LGB populations using sexual orientation data in the NHIS—the principal source of information on the health of the U.S. population. Findings from our study indicate that lesbian, gay and bisexual (LGB) adults experience significant disparities in health and access to care. After stratifying our analyses by marital status, we found that married LGB adults were less likely to smoke cigarettes, report psychological distress, and experience barriers to health care compared to their unmarried LGB counterparts. This finding suggests that health benefits commonly associated with marriage in heterosexual populations also hold true for LGB people. Thus, this study provides evidence in support of AMA policy statements endorsing civil marriage for same-sex couples.

We found that sexual minority status was associated with poor health, health risk behaviors, and lower health care access. Consistent with a growing body of evidence, these disparities varied both by sexual identity and gender.^{28,32-33,44} In quantitative research, sexual minority adults are often combined across sexual orientation categories and/or gender in order to obtain adequate sample sizes. While LGB men and women share a common experience of stigmatization, they represent distinct groups with particular health issues and medical needs. Therefore, combining them into a single category may obscure important differences between groups. As additional data are collected each year, researchers should continue to examine

health-related outcomes for other vulnerable subgroups, including racial and ethnic minorities who also identify as sexual minorities.

Consistent with previous research, we found greater odds of obesity among lesbian women compared to heterosexual women; however, we also observed higher odds of obesity among bisexual women, a finding for which evidence has been conflicting.^{22,28,45-46} Similarly, our findings are consistent with a well-established literature on greater alcohol use among lesbian and bisexual women⁴⁷⁻⁵⁰ and elevated prevalence of cigarette smoking in lesbian and gay adults.⁵¹⁻⁵⁴ We also found that gay men were at increased risk of heart disease, contradicting previous studies.^{32,28,53} To our knowledge, our study is the first to find that bisexual adults are at higher risk of chronic obstructive pulmonary disease compared to heterosexual adults.⁵⁴

A number of studies have found mental health disparities between LGB and heterosexual populations.^{44, 55-59} It is therefore surprising that we did not find increased odds of severe psychological distress among gay and lesbian individuals. This finding is inconsistent with minority stress theory,⁷⁻¹⁰ as well as with previous research.^{44, 58-59} However, the literature has not been unequivocal on the presence of this disparity.⁶⁰ One explanation for our results could be selection bias associated with in-person reporting of sexual orientation. In a prior study, lesbian women who were comfortable disclosing their sexual orientation had better mental health than those who were not.⁶¹ An alternative explanation may be that non-specific psychological distress measured by the K6 instrument may not capture the full spectrum of mental disorders common in LGB populations.⁵⁵

Meanwhile, we found significantly greater odds of psychological distress among bisexual men and women, in accordance with a growing literature documenting this disparity.^{28, 44,62-64} Bisexual people are not only marginalized by the larger heterosexual population, but bisexual

individuals may also experience stigma from some gay and lesbian people, resulting in lower connections with the sexual minority community.⁶⁵⁻⁶⁸ Combined with the relative scarcity of bisexual communities and organization,⁴⁴ this may lead to social isolation—a risk factor for psychological distress.⁶⁸

We observed cost barriers to health care for LGB adults, but no differences in health insurance coverage. Our findings may be attributed to combining partnered and single adults. Although our findings are consistent with other studies combining LGB adults,^{28,69} previous research has found that individuals with same-sex partners are less likely to have health insurance.⁷⁰⁻⁷³ Same-sex marriage laws will only improve coverage to partnered LGB adults, as some employers are required to extend health benefits to spouses of LGB workers when states adopt same-sex marriage. Additionally, partnered adults are more likely to share financial resources when seeking medical care. Indeed, differences in coverage and access to care diminish after stratifying our sample to married adults.

There were limitations to using the NHIS for this study. All responses to the NHIS are self-reported, which can lead to recall bias when reporting diagnoses of chronic conditions and experiences with accessing care in the previous year. Additionally, reporting LGB status may suffer from selection bias. Lesbian women, for instance, are more likely than gay men to register and report their same-sex relationships and sexual orientation status.⁷⁴ Additionally, adults reporting sexual minority status are more likely to be highly educated,⁷⁵ and non-response is common among racial and ethnic minorities.⁷⁶ Because of the documented relationship between socioeconomic disadvantage and poor health outcomes, we may be underestimating the association between sexual orientation and health at the lower end of the socioeconomic spectrum.

Finally, the NHIS is a cross-sectional survey and cannot definitively establish the causal directions of the observed associations. Some adults surveyed in the NHIS will be followed in the Medical Expenditure Panel Survey for two additional years. As more LGB adults are included in these national surveys, longitudinal data will allow researchers to assess the short-term effects of marriage among LGB people, but questions regarding sexual orientation should be added to other federally-funded surveys to examine trends and long-term impacts of marriage in LGB populations. Clinics and medical centers can also add sexual orientation to standard demographic forms and electronic health records to assess the special medical needs of LGB populations in specific regions.^{6,19} Also missing from the NHIS and electronic health records is information on transgender identity; the NHIS should continue its work to incorporate transgender identity status.

Notwithstanding these limitations, our study confirms the presence of health disparities in the LGB population using data from the country's principal health survey. Our study also adds evidence to the small, but growing, body of research demonstrating the health benefits of marriage for LGB people. Since 2009, the AMA has recognized same-sex marriage as an important health policy goal, because "denying civil marriage based on sexual orientation is discriminatory and imposes harmful stigma...[and] contributes to health care disparities."¹⁹ While the future of same-sex marriage remains uncertain in many states, health care providers should continue to support marriage for all Americans as a fundamental determinant of health and well-being.

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Table 1. Characteristics of US Adults by Sex and Sexual Orientation ^a								
Characteristic	Men				Women			
	Heterosexual n=14487	Gay n=307	Bisexual n=78	P-Value	Heterosexual n=18042	Lesbian n=235	Bisexual n=155	P-value
Demographics (%)								
Weighted Percent	97.9	1.7	0.4		97.8	1.3	0.9	
Age, y				0.005				<0.001
18-25	15.1	20.8	21.4		13.4	21.3	43.3	
26-34	16.0	18.2	17.9		15.6	21.3	25.7	
35-49	26.0	28.5	33.4		25.2	23.6	20.9	
50-64	25.9	26.4	18.9		25.8	26.5	7.0	
65+	17.0	6.1	8.5		20.0	7.4	3.1	
Race/Ethnicity				0.032				0.761
Non-Hispanic white	67.1	70.0	63.2		66.4	69.9	67.0	
Non-Hispanic black	11.0	11.1	9.4		12.4	11.5	16.0	
Hispanic	15.7	14.3	8.6		14.6	13.7	12.1	
Non-Hispanic Other	6.2	4.6	18.8		6.6	4.8	4.9	
Marital Status				<0.001				<0.001
Married	56.9	6.9	29.4		51.5	12.2	20.8	
Single/Never Married	27.5	82.6	51.7		24.1	72.4	61.4	
Separated/Divorced	12.4	9.9	14.6		14.7	13.3	15.4	
Widowed	3.0	0.6	4.4		9.5	2.2	1.4	
Socioeconomic Status (%)								
Family Income, \$				0.047				0.02
0-34,999	28.0	30.7	40.8		32.2	34.1	50.1	
35,000-74,999	30.5	33.6	20.3		30.1	27.1	29.0	
75,000-99,999	12.2	6.0	19.6		10.8	13.2	10.6	
≥100,000	23.2	25.5	17.5		20.4	22.3	4.6	
Missing	6.1	4.2	1.8		6.4	3.3	5.7	
Education				<0.001				0.011
<High school graduate	14.3	5.8	9.3		13.3	4.9	20.1	
High school graduate	26.9	15.1	19.0		25.2	19.6	27.5	
Some college	29.1	36.8	36.0		32.1	35.7	32.7	
≥Bachelor's Degree	29.2	42.3	35.7		29.0	39.7	19.7	

^aData are from the 2013 National Health Interview Survey, adults 18 or older

Table 2. Health Status, Health Behaviors and Access to Care of US Adults by Sex and Sexual Orientation ^a								
Characteristic	Men				Women			
	Heterosexual n=14487	Gay n=307	Bisexual n=78	P-Value	Heterosexual n=18042	Lesbian n=235	Bisexual n=155	P-value
Fair or Poor Health	12.6	11.2	19.7	0.282	13.9	15.2	11.5	0.738
Functional Limitation	28.7	26.1	33.6	0.554	38.7	43.0	49.2	0.115
Body mass index				<0.001				0.007
<24.9	29.4	45.0	39.4		43.8	35.4	37.7	
25-29.9	41.3	32.0	35.1		28.3	26.7	21.0	
≥30	29.2	23.0	25.5		28.0	38.0	41.3	
Chronic Health Conditions								
Heart disease	12.3	14.0	13.0	0.757	10.7	8.6	4.3	0.098
Cerebrovascular disease	2.8	0.8	0.6	0.004	2.8	2.0	2.6	0.777
Hypertension	30.3	24.0	24.3	0.092	29.3	22.7	13.0	0.001
Diabetes mellitus	9.7	8.1	10.4	0.73	9.2	6.0	2.7	0.018
Chronic obstructive pulmonary disease	3.9	2.1	8.7	0.048	5.6	4.7	9.5	0.163
Asthma	5.1	7.8	8.9	0.11	8.5	10.3	14.3	0.074
Mental Health				<0.001				<0.001
No psychological distress	88.6	84.3	63.9		84.8	78.1	62.3	
Moderate psychological distress	8.2	10.7	25.5		10.9	16.7	26.9	
Severe psychological distress	3.2	5.0	10.7		4.3	5.3	10.9	
Alcohol use				<0.001				<0.001
Lifetime abstainer	15.5	7.3	7.3		26.3	12.6	25.6	
Former drinker	14.4	7.7	10.0		14.3	15.0	4.6	
Infrequent, light or moderate drinker	64.3	79.3	74.5		54.8	61.5	56.8	
Heavy drinker	5.7	5.8	8.3		4.7	10.9	13.0	
Cigarette use				0.177				<0.001
Never smoker	54.2	51.6	49.6		66.2	43.8	56.5	
Former smoker	20.3	26.9	28.8		15.0	28.4	28.5	
Current smoker	25.6	21.5	21.6		18.8	27.8	15.0	
No health insurance	18.3	15.1	19.0	0.503	14.9	18.5	24.1	0.03
No usual source of care	23.8	20.7	31.3	0.339	14.3	25.7	30.2	<0.001
Unmet medical care due to cost	7.0	8.4	16.1	0.029	8.2	15.8	16.2	<0.001
Unmet dental care due to cost	10.9	16.2	11.5	0.047	14.3	20.1	30.7	<0.001
Unmet mental health care due to cost	1.4	3.3	3.0	0.154	2.6	7.4	10.2	<0.001

^aData are from the 2013 National Health Interview Survey, adults 18 or older

Table 3. Association Between Sexual Orientation and Health Status, Health Behaviors and Access to Care^a				
	Men		Women	
	Gay vs Heterosexual	Bisexual vs Heterosexual	Lesbian vs Heterosexual	Bisexual vs Heterosexual
	Adjusted Odds Ratio (95% CI) ^b		Adjusted Odds Ratio (95% CI) ^b	
Fair or Poor Health	1.11 (0.65-1.90)	2.41 (1.07-5.45)	1.82 (1.07-3.10)	1.25 (0.65-2.38)
Functional Limitation	1.20 (0.79-1.80)	1.79 (0.91-3.50)	1.73 (1.16-2.58)	3.14 (1.86-5.30)
Body mass index <24.9 [Reference]				
25-29.9	0.66 (0.45-0.96)	0.82 (0.42-1.60)	1.40 (0.86-2.27)	1.08 (0.64-1.81)
≥30	0.76 (0.50-1.15)	0.91 (0.45-1.83)	1.83 (1.21-2.76)	1.99 (1.15-3.43)
Chronic Health Conditions				
Heart disease	1.64 (1.02-2.64)	1.56 (0.71-3.47)	1.21 (0.64-2.29)	0.77 (0.30-2.00)
Cerebrovascular disease	0.43 (0.15-1.26)	0.29 (0.05-1.58)	1.26 (0.45-3.47)	2.69 (0.85-8.45)
Hypertension	1.03 (0.72-1.49)	1.00 (0.53-1.92)	1.17 (0.72-1.90)	0.85 (0.42-1.71)
Diabetes mellitus	1.31 (0.73-2.37)	1.71 (0.74-3.98)	0.95 (0.46-1.95)	0.60 (0.21-1.68)
Chronic obstructive pulmonary disease	0.63 (0.31-1.28)	2.97 (1.11-7.95)	0.96 (0.46-1.99)	2.46 (1.29-4.71)
Asthma	1.39 (0.86-2.23)	1.73 (0.57-5.21)	1.12 (0.69-1.82)	1.63 (0.94-2.83)
Mental Health				
No psychological distress [Reference]				
Moderate psychological distress	1.37 (0.93-2.03)	4.13 (1.99-8.55)	1.60 (1.01-2.55)	2.69 (1.42-5.11)
Severe psychological distress	1.96 (0.84-4.58)	5.36 (1.33-21.53)	1.33 (0.66-2.67)	2.94 (1.53-5.67)
Alcohol use				
Lifetime abstainer [Reference]				
Former drinker	1.64 (0.79-3.42)	2.25 (0.68-7.47)	2.72 (1.29-5.74)	0.53 (0.23-1.21)
Infrequent, light or moderate drinker	2.64 (1.51-4.61)	2.98 (0.94-9.43)	1.86 (0.97-3.57)	1.29 (0.72-2.30)
Heavy drinker	1.99 (0.88-4.49)	3.46 (0.83-14.54)	3.29 (1.48-7.34)	3.26 (1.47-7.23)
Cigarette use				
Never smoker [Reference]				
Former smoker	1.59 (1.06-2.38)	1.34 (0.57-3.14)	2.89 (1.82-4.59)	1.71 (1.02-2.89)
Current smoker	1.70 (1.02-2.81)	1.60 (0.80-3.22)	2.84 (1.86-4.34)	1.64 (0.92-2.94)
No health insurance	0.61 (0.39-0.94)	0.98 (0.42-2.27)	1.27 (0.78-2.05)	1.06 (0.62-1.80)
No usual source of care ^c	0.73 (0.44-1.20)	1.27 (0.66-2.43)	1.81 (1.13-2.87)	1.47 (0.80-2.72)
Unmet medical care due to cost ^c	1.07 (0.63-1.83)	2.34 (0.94-5.82)	2.08 (1.29-3.33)	1.49 (0.82-2.71)
Unmet dental care due to cost ^c	1.59 (1.05-2.42)	0.92 (0.40-2.13)	1.41 (0.87-2.27)	2.09 (1.27-3.45)
Unmet mental health care due to cost ^c	1.42 (0.50-4.01)	1.57 (0.16-15.74)	2.54 (1.29-5.02)	2.89 (1.45-5.77)

^aData are from the 2013 National Health Interview Survey, adults 18 or older

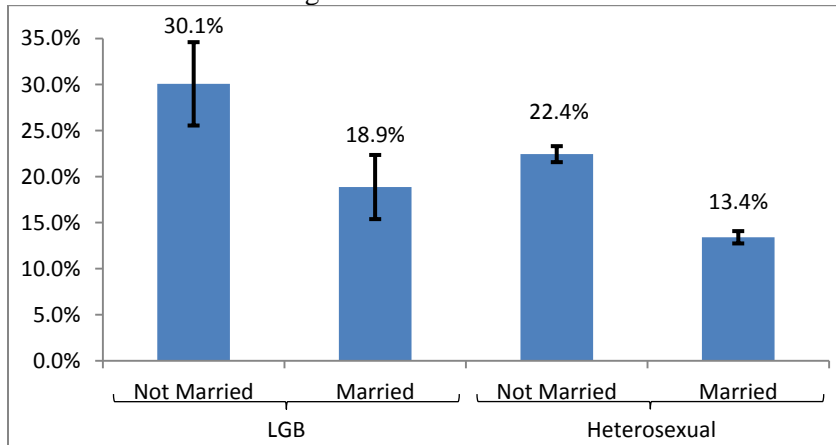
^bAdjusted for age, race and ethnicity, marital status, education and family income.

^cAdjusted for age, race and ethnicity, marital status, education, family income and health insurance.

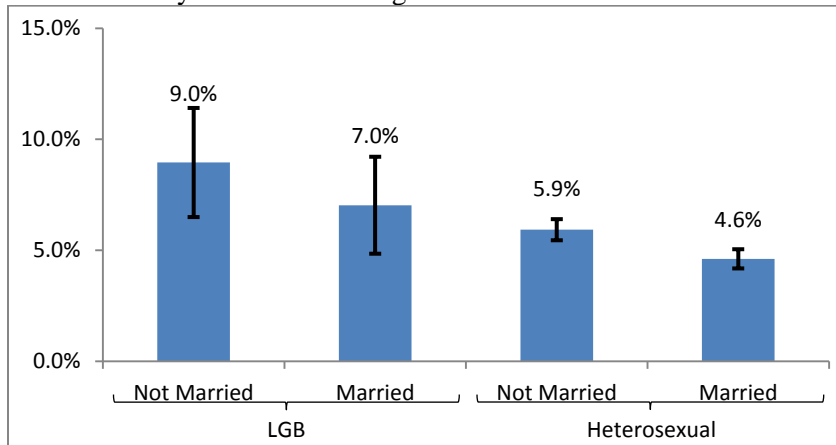
Boldface denotes P < .05.

Figure 1. Predicted Probabilities of Health Behaviors and Mental Health by Marital Status and Sexual Orientation^a

Panel A: Current Smoking^b



Panel B: Heavy Alcohol Drinking^b



Panel C: Moderate and Severe Psychological Distress^b



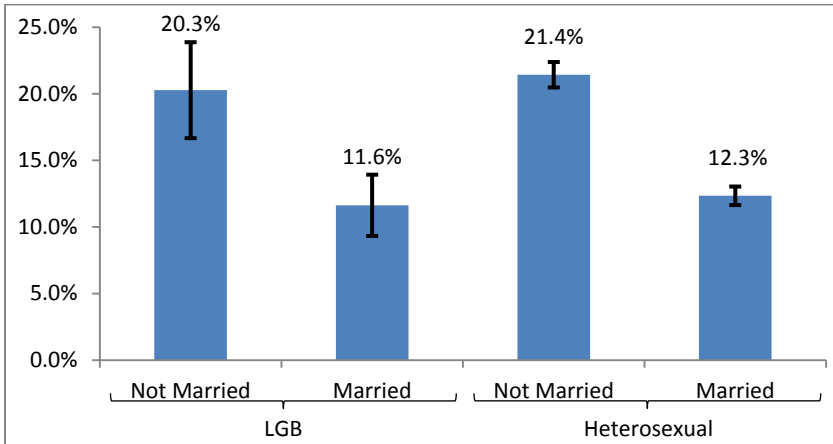
^aData are from the 2013 National Health Interview Survey, adults 18 or older.

^bAdjusted for age, race and ethnicity, education, sex and family income.

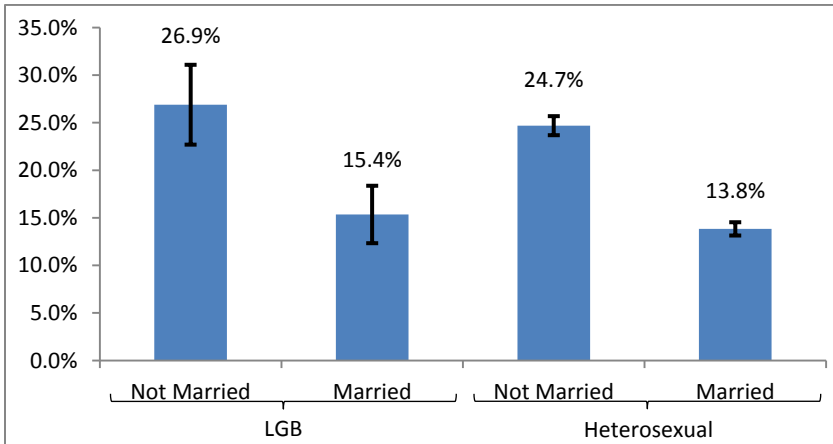
LGB indicates lesbian, gay and bisexual.

Figure 2. Predicted Probabilities of Access to Care by Marital Status and Sexual Orientation^a

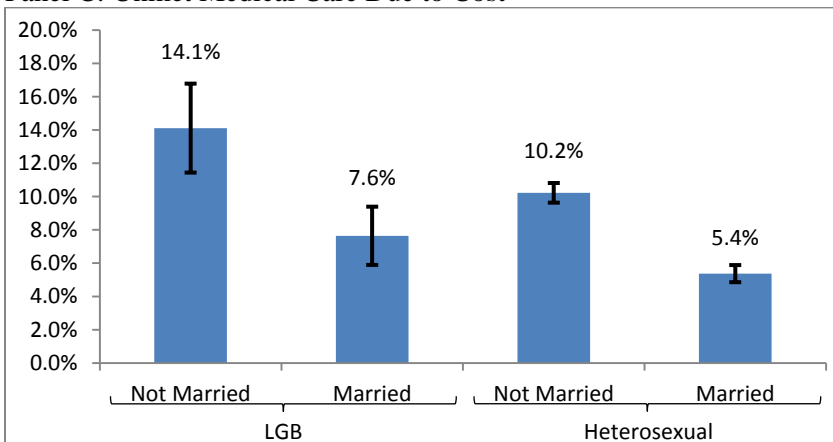
Panel A: No Health Insurance^b



Panel B: No Usual Source of Care^c



Panel C: Unmet Medical Care Due to Cost^c



^aData are from the 2013 National Health Interview Survey, adults 18 or older.

^bAdjusted for age, race and ethnicity, education, sex and family income.

^cAdjusted for age, race and ethnicity, education, sex, family income and health insurance.

LGB indicates lesbian, gay and bisexual.

eTable 1. Predicted Probabilities of Health Behaviors, Mental Health and Access to Care by Marital Status and Sexual Orientation^a

	Weighted % (95% CI)	Contrast to Married LGB Adults	P-Value	Contrast to Married Heterosexual Adults	P-Value
Current Smoking^b					
LGB - Not Married	30.1 (25.6-34.6)	11.2 (9.6-12.8)	<.001	16.7 (12.0-21.3)	<.001
LGB - Married	18.9 (15.4-22.3)	Reference		5.5 (2.0-8.9)	0.002
Heterosexual - Not Married	22.4 (21.6-23.3)	3.6 (-0.2-7.3)	0.060	9.0 (8.0-10.0)	<.001
Heterosexual - Married	13.4 (12.7-14.1)	5.5 (2.0-8.9)	0.002	Reference	
Heavy Alcohol Drinking^b					
LGB - Not Married	9.0 (6.5-11.4)	1.9 (1.0-2.9)	<.001	4.3 (1.9-6.8)	0.001
LGB - Married	7.0 (4.8-9.2)	Reference		2.4 (0.4-4.5)	0.021
Heterosexual - Not Married	5.9 (5.4-6.4)	1.1 (-1.2-3.4)	0.351	1.3 (0.7-1.9)	<.001
Heterosexual - Married	4.6 (4.2-5.0)	2.4 (0.4-4.5)	0.021	Reference	
Moderate and Severe Psychological Distress^b					
LGB - Not Married	26.8 (22.2-31.4)	8.6 (6.8-10.4)	<.001	16.1 (11.5-20.8)	<.001
LGB - Married	18.2 (14.6-21.8)	Reference		7.5 (4.0-11.0)	<.001
Heterosexual - Not Married	16.5 (15.7-17.3)	1.7 (-2.1-5.5)	0.386	5.8 (4.8-6.9)	<.001
Heterosexual - Married	10.7 (10.0-11.4)	7.5 (4.0-11.0)	<.001	Reference	
No Health Insurance^b					
LGB - Not Married	20.3 (16.7-23.9)	8.6 (7.0-10.3)	<.001	7.9 (4.2-11.6)	<.001
LGB - Married	11.6 (9.3-13.9)	Reference		0.7 (-1.5-2.9)	0.528
Heterosexual - Not Married	21.4 (20.5-22.4)	9.8 (7.2-12.4)	<.001	9.1 (7.9-10.2)	<.001
Heterosexual - Married	12.3 (11.6-13.0)	0.7 (-1.5-2.9)	0.528	Reference	
No Usual Source of Care^c					
LGB - Not Married	26.9 (22.7-31.1)	11.5 (9.8-13.2)	<.001	13.1 (8.8-17.3)	<.001
LGB - Married	15.4 (12.3-18.4)	Reference		1.5 (-1.4-4.5)	0.311
Heterosexual - Not Married	24.7 (23.7-25.7)	9.3 (6.0-12.6)	<.001	10.8 (9.7-12.0)	<.001
Heterosexual - Married	13.8 (13.1-14.5)	1.5 (-1.4-4.5)	0.311	Reference	
No Medical Care Due to Cost^c					
LGB - Not Married	14.1 (11.4-16.8)	6.5 (5.1-7.8)	<.001	8.7 (6.0-11.5)	<.001
LGB - Married	7.6 (5.9-9.4)	Reference		2.3 (0.6-3.9)	0.007
Heterosexual - Not Married	10.2 (9.6-10.8)	2.6 (0.7-4.5)	0.009	4.9 (4.1-5.6)	<.001
Heterosexual - Married	5.4 (4.9-5.9)	2.3 (0.6-3.9)	0.007	Reference	

^aData are from the 2013 National Health Interview Survey, adults 18 or older.

^bAdjusted for age, race and ethnicity, education, sex and family income.

^cAdjusted for age, race and ethnicity, education, sex, family income and health insurance.

LGB indicates lesbian, gay and bisexual.

eTable 2. Predicted Probabilities of Health Behaviors, Mental Health and Access to Care by Marital Status and Sexual Orientation - Excluding Bisexual Adults with Opposite-Sex Spouses and Partners^a

	Weighted % (95% CI)	Contrast to Married LGB Adults	P-Value	Contrast to Married Heterosexual Adults	P-Value
Current Smoking^b					
LGB - Not Married	30.2 (25.5-34.9)	11.3 (9.6-12.9)	<.001	16.8 (12.0-21.6)	<.001
LGB - Married	19.0 (15.3-22.6)	Reference		5.5 (2.0-9.1)	.003
Heterosexual - Not Married	22.4 (21.6-23.3)	3.5 (-0.4-7.4)	0.078	9.0 (8.0-10.1)	<.001
Heterosexual - Married	13.4 (12.7-14.1)	5.5 (2.0-9.1)	0.003	Reference	
Heavy Alcohol Drinking^b					
LGB - Not Married	7.9 (5.5-10.4)	1.8 (0.9-2.7)	<.001	3.4 (0.9-5.8)	0.007
LGB - Married	6.1 (4.0-8.2)	Reference		1.5 (-0.4-3.5)	0.129
Heterosexual - Not Married	6.0 (5.5-6.4)	0.1 (-2.1-2.4)	0.903	1.4 (0.8-2.0)	<.001
Heterosexual - Married	4.6 (4.1-5.0)	1.5 (-0.4-3.5)	0.129	Reference	
Moderate and Severe Psychological Distress^b					
LGB - Not Married	26.0 (21.5-30.6)	8.5 (6.7-10.3)	<.001	15.4 (10.7-20.0)	<.001
LGB - Married	17.5 (13.9-21.1)	Reference		6.9 (3.4-10.3)	<.001
Heterosexual - Not Married	16.6 (15.8-17.3)	1.0 (-2.8-4.7)	0.612	5.9 (4.9-7.0)	<.001
Heterosexual - Married	10.7 (10.0-11.4)	6.9 (3.4-10.3)	<.001	Reference	
No Health Insurance^b					
LGB - Not Married	19.8 (16.0-23.6)	8.5 (6.7-10.2)	<.001	7.5 (3.6-11.4)	<.001
LGB - Married	11.3 (9.0-13.7)	Reference		1.0 (-1.4-3.4)	0.400
Heterosexual - Not Married	21.4 (20.5-22.4)	10.1 (7.4-12.8)	<.001	9.1 (8.0-10.3)	<.001
Heterosexual - Married	12.3 (11.6-13.0)	1.0 (-1.3-3.4)	0.400	Reference	
No Usual Source of Care^c					
LGB - Not Married	26.7 (22.2-31.2)	11.5 (9.7-13.2)	<.001	12.8 (8.3-17.4)	<.001
LGB - Married	15.2 (12.0-18.4)	Reference		1.4 (-1.8-4.5)	0.393
Heterosexual - Not Married	24.7 (23.7-25.7)	9.5 (6.0-13.0)	<.001	10.9 (9.7-12.1)	<.001
Heterosexual - Married	13.8 (13.1-14.5)	1.4 (-1.8-4.5)	0.393	Reference	
No Medical Care Due to Cost^c					
LGB - Not Married	13.9 (11.1-16.6)	6.4 (5.1-7.8)	<.001	8.6 (5.8-11.4)	<.001
LGB - Married	7.5 (5.7-9.2)	Reference		2.1 (0.5-3.8)	0.012
Heterosexual - Not Married	10.2 (9.7-10.8)	2.8 (0.8-4.7)	0.006	4.9 (4.1-5.6)	<.001
Heterosexual - Married	5.4 (4.8-5.9)	2.1 (0.5-3.8)	0.012	Reference	

^aData are from the 2013 National Health Interview Survey, adults 18 or older.

^bAdjusted for age, race and ethnicity, education, sex and family income.

^cAdjusted for age, race and ethnicity, education, sex, family income and health insurance.

LGB indicates lesbian, gay and bisexual.